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out ($= 1^{s}\cdot8 \pm$) from the first glimpse I observed of it. Not so pale as the third satellite, though obviously smaller, and seemed to suffer less in brightness from proximity to the moon. Quite round.

"*Reappearance of the Second Satellite*, occupied about four beats of the chronometer ($= 1^{s}\cdot6$) after being first seen. The place was well indicated, as before, by the micrometer wire. The colour of this satellite was like that of the first, but its disk was obviously smaller. It was quite round, and parted from the moon without hesitation.

"The approximate geographical position of my observatory is in lat. $51^{\circ}\ 45'\ 50''$ north, and long. $3^{m}\ 44^{s}\cdot0$ west."

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## *Note on the Occultation of Jupiter of January* 2, 1857.

By W. R. Grove, Esq., V.P.R.S.

"Owing to the great kindness of Mr. Gillett, I was enabled to observe this occultation through his binocular telescope. This instrument is by Ross, the object-glasses $3\frac{3}{8}$ inches diameter, focal length 51 inches: portions (about $\frac{1}{4}$ inch) of the glasses are ground away to enable them to be approximated sufficiently for the distance between the eyes of the observer. The power used was 60, which gave a greater idea of magnitude than double that power in a monocular telescope.

"The dark limb of the moon was faintly visible throughout the time of the occultation. The disappearance of the satellites was not instantaneous as with a fixed star, but (as indeed might have been expected) they gradually faded away. The light of the moon's edge was too feeble for me to ascertain whether they disappeared at the exact edge or not. I should say that they seemed to be a little within it, but I could not positively assert this. *Jupiter* was cut off with perfect sharpness, and I could not detect the slightest distortion. When about one-third was eclipsed the light of the planet appeared brighter along the edge of the moon, and this apparently increased brightness continued until it was about three-fourths eclipsed. Two spots in the neighbourhood of the upper belt (as viewed by inverting telescope) were notably bright, so as to attract attention, and they continued so during the period above mentioned, each looking somewhat like an electric glow coming off the dark edge of the moon. This effect may be optical, and caused by the immediate proximity of darkness to central and more luminous portions of the planet, but it was very marked. I observed no other effect during the period of immersion. I looked for an effect said to have been observed on previous occasions, viz. a faint illumination of the dark edge of the moon upon contact, but could not detect the slightest trace of it. On emersion I could detect no distortion of any sort, nor did I see the dark line which I noticed in the occultation of Nov. 8, 1856. The difference of light and colour between the planet and the moon was the same as then observed.

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"After emersion there was a decided stereoscopic effect, seen both by Mr. Gillett (who, up to this time had left the telescope entirely to me,) and myself, *Jupiter* in the binocular appearing as at a distance behind the moon. Mr. Gillett tells me that with terrestrial objects the effect of the binocular, if inverting eye-glasses are used, is in many instances pseudoscopic, the more distant objects appearing nearer than the more proximate, which is the effect that theory would indicate.

"The satellite, last in order on emersion, seemed to cling for a second or so to the moon's edge, probably an effect due to irradiation. I did not observe this with the three others, but I did not catch the moments of emersion so well with them. I was greatly struck by the beautiful impression conveyed to the mind by the binocular telescope, and judging from what I had seen with a monocular telescope of my own, of 4·3 inches aperture, and therefore not far differing in area from the compound area of the two object-glasses in the binocular, the latter was decidedly superior, and the ease and, if I may be allowed the expression, the *naturalness* of the vision, was very remarkable."

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## *Note on the Occultation of Jupiter on the 2d January,* 1857.

By Mr. John Watson, Washington Chemical Works, Durham.

"The evening of the 2d instant being remarkably clear, I resolved to watch the appearance of *Jupiter* in a *star-gazing fashion* only during the occultation, leaving the time-observations to other and better-equipped observatories. To secure the utmost degree of stability, I placed the telescope, a 9-ft. Newtonian of 8-inches aperture, power 100, with its lower end on the ground, supporting the upper end of the tube with a Smeaton's stand.

"The satellites disappeared at the slightly illuminated edge of the moon, without anything unusual being noticed. From the moment of first contact *Jupiter* disappeared smoothly and gradually, and without the least perceptible distortion. The couple of minutes which elapsed between first contact and total disappearance afforded abundance of time to notice the well-defined, curved outline of the moon as projected on the disk of *Jupiter*, and also to observe that the belts of the planet could easily be traced *unaltered* up to the moon's dark limb.

"The two preceding satellites served admirably as *pointers* to indicate the place of emersion at the bright side of the moon. As *Jupiter* emerged from behind the moon, the belts were again noticed *unaltered;* nor was the least distortion observed on the edges of either the moon or planet. No dark line of separation could be seen; but the greenish tint, noticed by Mr. De la Rue in November, was very perceptible on the face of *Jupiter*.

"I should not have considered it necessary to lay before the Society a paper containing so many negative results had not some other published observations been so widely different."

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